

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 May 2004 (27.05.2004)

PCT

(10) International Publication Number
WO 2004/044638 A1

(51) International Patent Classification⁷: **G02B 15/177**,
15/16

MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:
PCT/IB2003/004879

(22) International Filing Date: 31 October 2003 (31.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02079685.0 11 November 2002 (11.11.2002) EP

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

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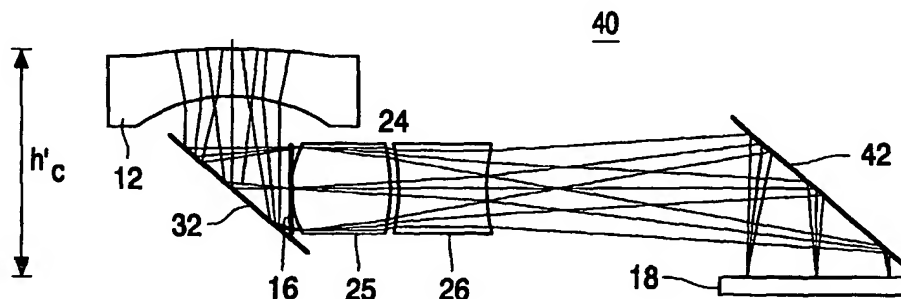
(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ZOOM LENS



(57) Abstract: In a zoom lens (30) comprising, from the object side to the image side, a front lens group (12) and a controllable lens group (24), the controllable lens group comprises two lens elements (25, 26) having different dispersions and being movable with respect to each other so as to perform a focusing action. One of the lens elements corrects for the dispersion of the zoom lens. Preferably, the zoom lens comprises at least one folding mirror.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 03/04879

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G02B15/177 G02B15/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 249 798 A (MOSKOVICH JACOB) 10 February 1981 (1981-02-10) cited in the application abstract column 3, line 53 -column 4, line 11 table 1	1-8
A	US 5 268 792 A (KREITZER MELVYN ET AL) 7 December 1993 (1993-12-07) figure 9 abstract	2
A	US 2002/159772 A1 (SAITO HIROSHI) 31 October 2002 (2002-10-31) figure 1 paragraph '0018!	6

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

9 February 2004

Date of mailing of the international search report

17/02/2004

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PCT/IB 03/04879

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 359 738 B1 (TSUCHIDA HIROFUMI ET AL) 19 March 2002 (2002-03-19) abstract figure 12	7,8
X	US 5 745 301 A (BETENSKY ELLIS I ET AL) 28 April 1998 (1998-04-28) abstract table 1	1-8
A	US 5 071 235 A (MORI NOBUYOSHI ET AL) 10 December 1991 (1991-12-10). figure 1 column 4, line 67 -column 5, line 19	1

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 03/04879

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4249798	A	10-02-1981	NONE	
US 5268792	A	07-12-1993	GB 2261529 A ,B JP 5508945 T WO 9221048 A1	19-05-1993 09-12-1993 26-11-1992
US 2002159772	A1	31-10-2002	JP 2000199865 A	18-07-2000
US 6359738	B1	19-03-2002	JP 2001141998 A	25-05-2001
US 5745301	A	28-04-1998	DE 69530113 D1 DE 69530113 T2 EP 0799433 A1 JP 10513270 T WO 9619749 A1	30-04-2003 05-02-2004 08-10-1997 15-12-1998 27-06-1996
US 5071235	A	10-12-1991	JP 2006917 A JP 1307714 A JP 2676367 B2	11-01-1990 12-12-1989 12-11-1997